

THE DARK ENERGY CAMERA COMMISSIONING STATUS

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Fermilab All Experimenters' Meeting ♦ Oct 1st, 2012



OVERVIEW

Commissioning phase II (on-sky tests) has started on SEPTEMBER 12 (first light).

This talk covers:

- Phase II goals
- Achievements since first-light
- Issues
- Plans for completion of phase II

Following phase II, we have scheduled Science Verification (to start on Nov 1) and Operations (to start on Dec 1)



PHASE II GOALS*

- At-zenith optical quality as expected
- Focusing, filter selection, shutter and other basic functions all work
- Telescope support systems (**air**, glycol, power) all function
- Telescope points and tracks moderately well, so that image quality can be ascertained on short exposures
- DECam power, cooling and vacuum systems function reliably
- DECam SISPI software does not require more than a few restarts per night, can read out all the CCDs and feed the DTS
- DTS functions, data input into Community and DESDM pipelines
- **Pipelines are operable and can flat-field single images correctly**
- **CCD performance is normal, no significant extra noise issues**
- Dome Flat-Field illumination system functions
- BCams work, **LUT built**, hexapod control as expected
- Donut can focus
- **Good pointing model**
- **Telescope tracks well**
- DECam guider plays well with the TCS

* From Walker's commissioning plan, docdb 3734



ACHIEVEMENTS

We are about half-way through commissioning and we have made great progress towards our goals. Highlights:

- In general, images are of good quality
- Flat field lamps were installed and aligned
- Transfers via DTS are working routinely
- Guider system is integrated to TCS
- Donuts system and BCams are integrated (LUT to be done)
- Cooling system is working reliably
- DESDM 'first cut' pipeline is working at FNAL
- Electronic logbook and 'nightsum' tool integrated
- Pinhole image shows one ring due to reflection on the F8 counterweight



NGC 1365

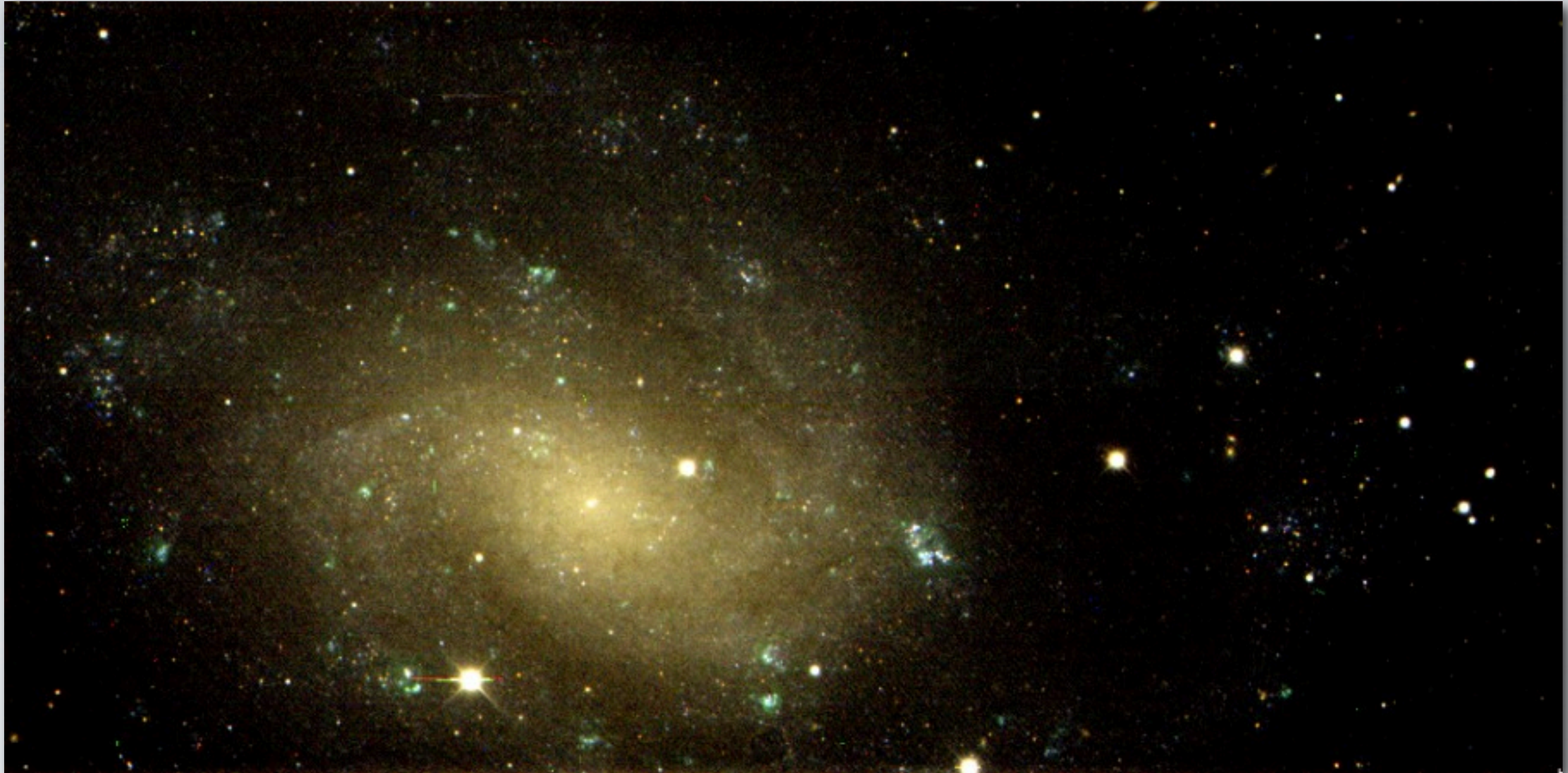
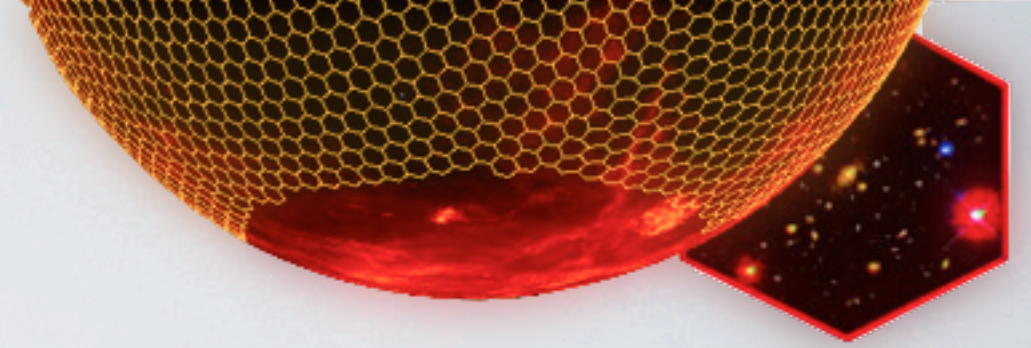


color image using g, r, Y filters

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NGC 300

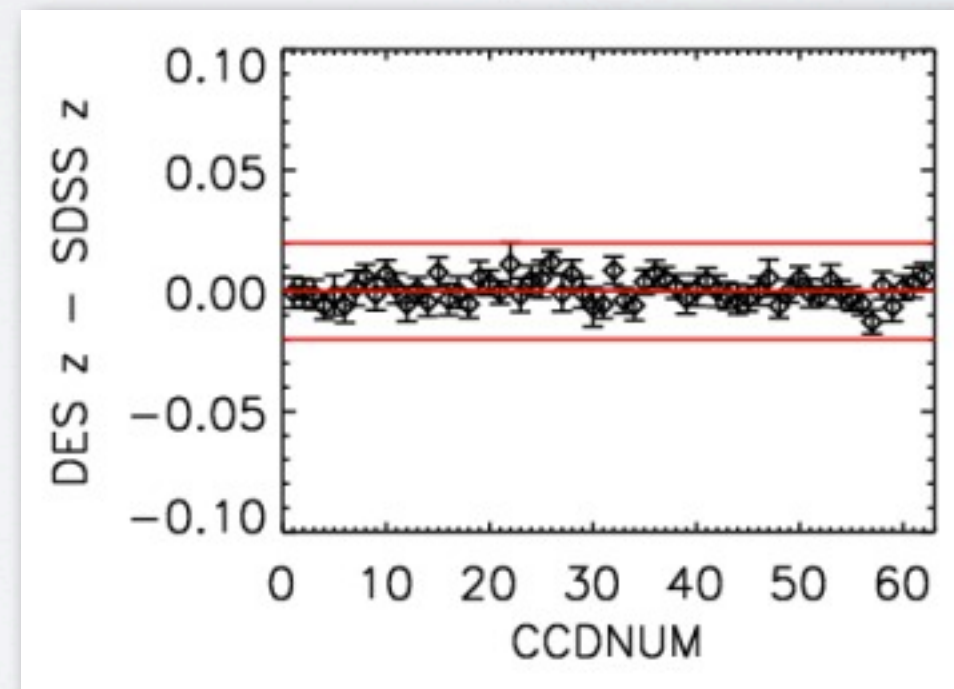
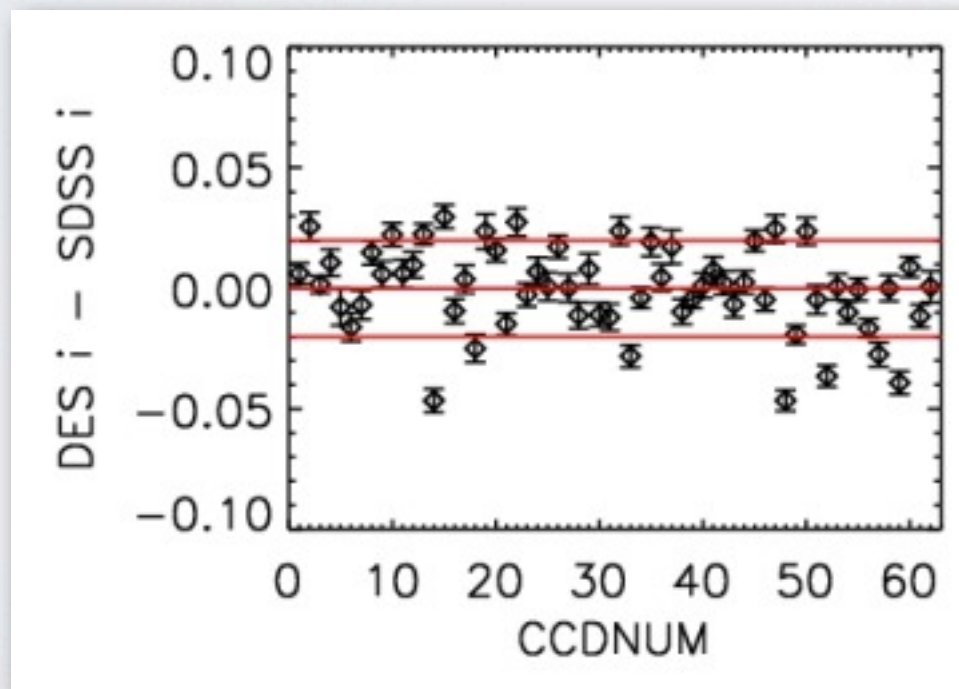
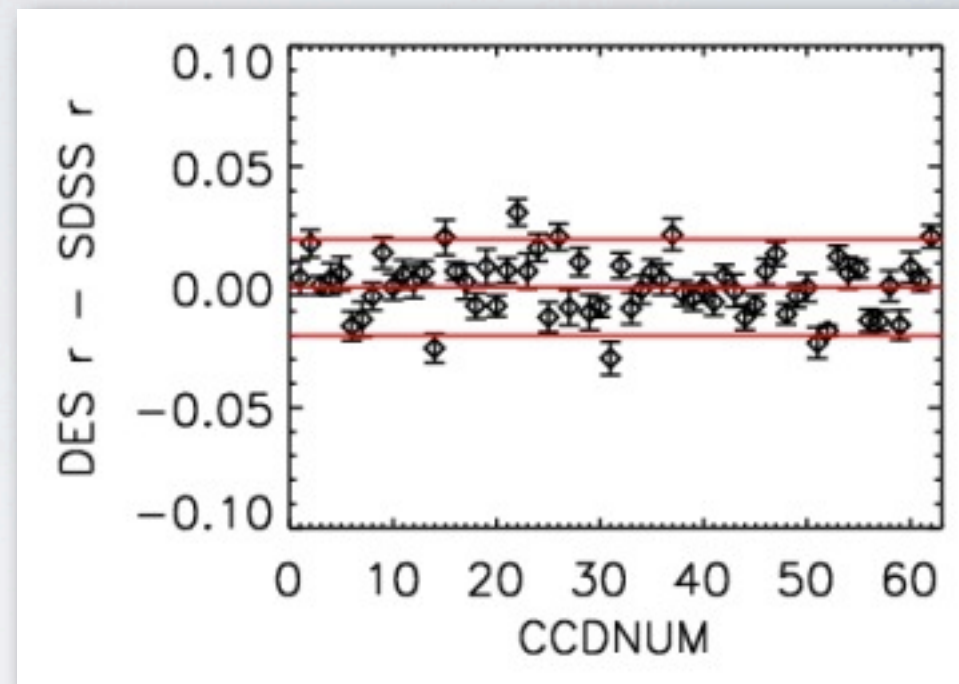
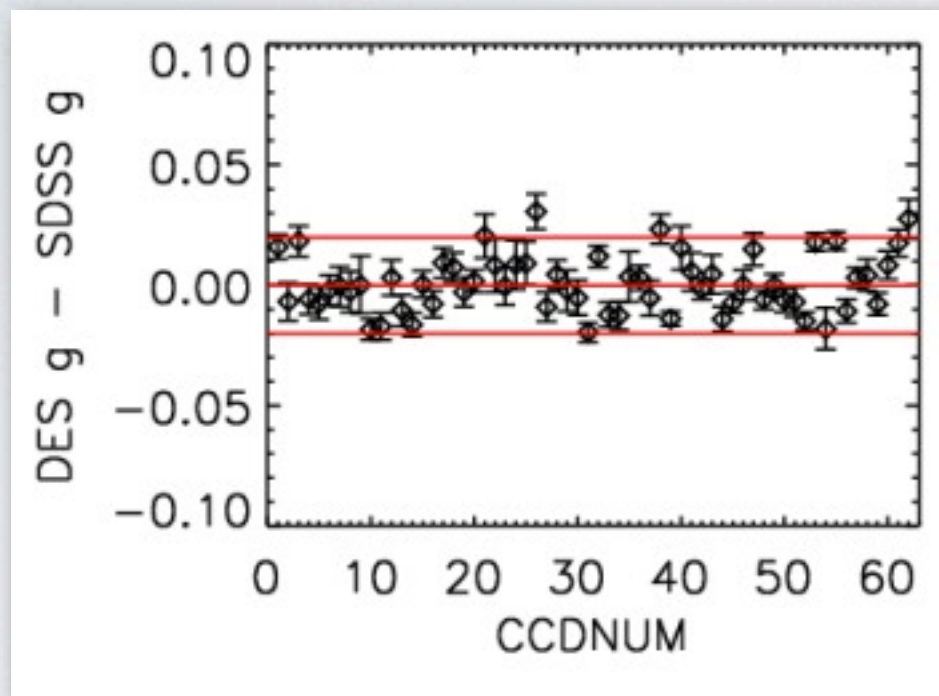


CCD S4 color image using g, r, i filters

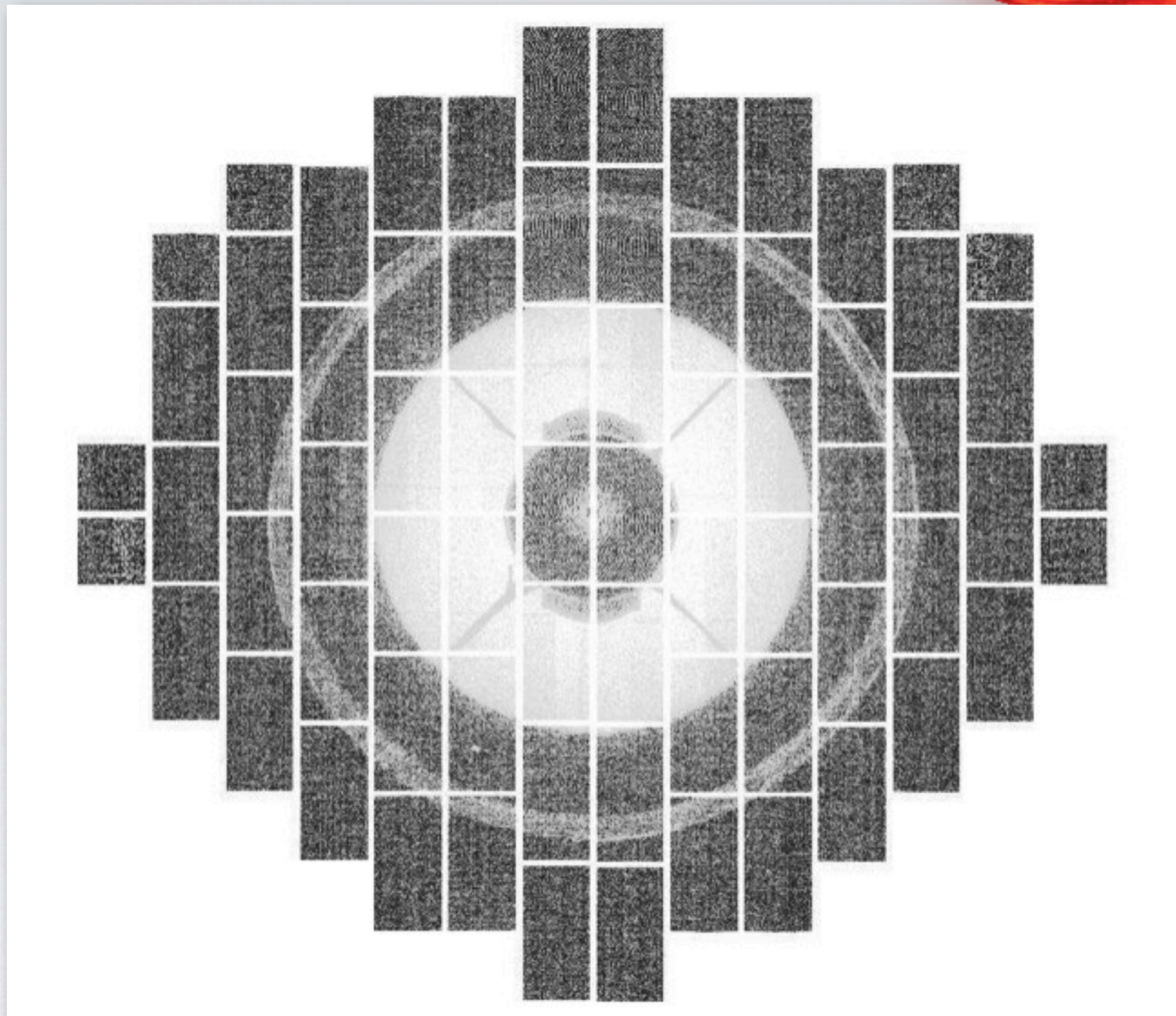
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PHOTOMETRY

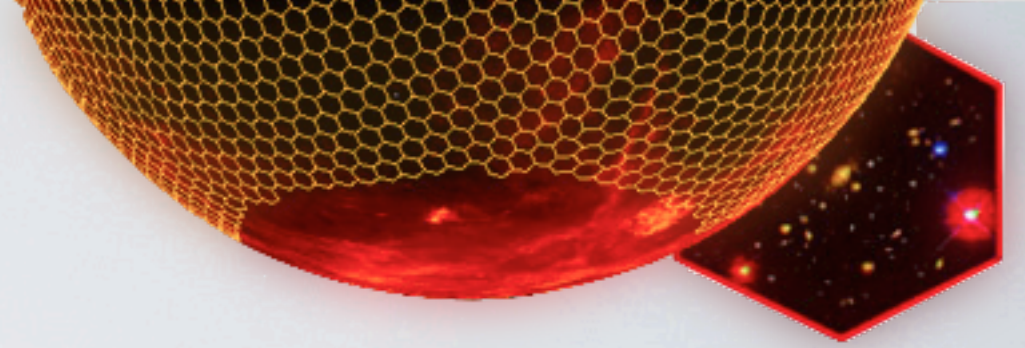


PINHOLE IMAGE

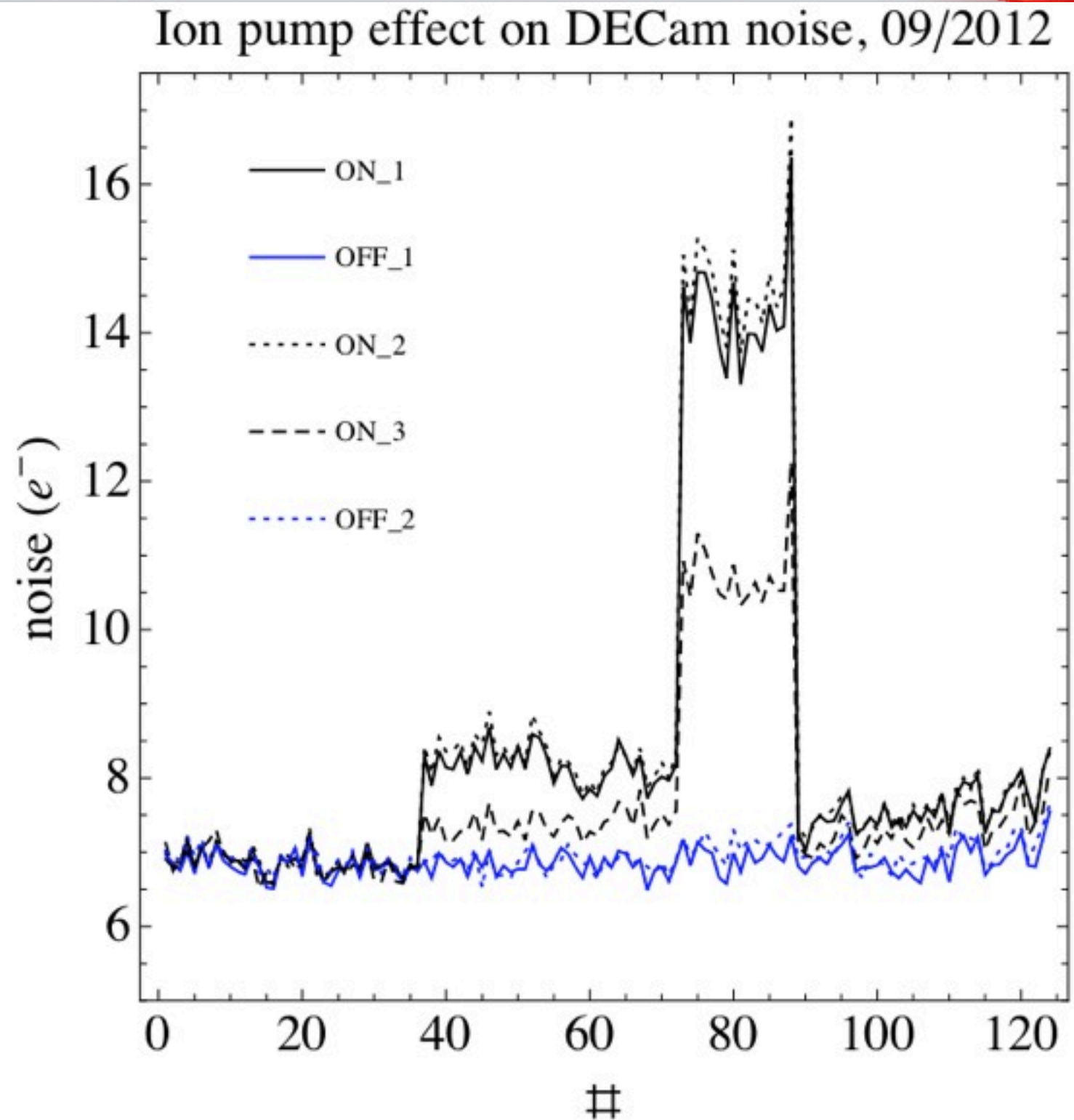


ISSUES

- Ion pump causes increased noise on CCDs located on bkp3-4.
Improvements on insulation are being implemented. We can also turn off the ion pump and use only the turbo pump.
- Air support to the mirror failures
The TCS team is working on improvements on this.
- Facility dry air (to C5 purge and FCM) failures
We have installed a backup system, which has to be refilled every day. We plan to switch this off when the facility dry air works reliably.



NOISE STUDY



SHORT TERM PLAN

Main night-time tasks:

- Build LUT and install in SISPI
- Obtain pointing map and install in TCS
- Finalize Guider tests
- Finalize Focus and Alignment tests

Main day-time tasks:

- Re-establish facility dry air system
- Prepare for installation of the cage end cap and covers
- Plan for reducing glancing incidence reflection off the F/8 counterweight
- Finalize the Oct 9 FCM activities
- Fix focus and alignment chips (two halves of two CCDs)
- Put Cu tape over edges of the Monsoon crate nearest to the Ion Pump controller

Studies to be completed:

- Standard star photometry from Sept 22 (other than Stripe 82, which we already have)
- Dome flat field performance
- Pipeline performance

